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Sequence Listing was accepted.

See attached Validation Report.

If you need help call the Patent Electronic Business Center at (866)  
217-9197 (toll free).

Reviewer: Anne Corrigan

Timestamp: Wed Sep 19 10:13:00 EDT 2007

=====

Application No: 09674546 Version No: 4.0

Input Set:

Output Set:

**Started:** 2007-09-19 09:57:06.399  
**Finished:** 2007-09-19 09:58:50.669  
**Elapsed:** 0 hr(s) 1 min(s) 44 sec(s) 270 ms  
**Total Warnings:** 40  
**Total Errors:** 216  
**No. of SeqIDs Defined:** 3287  
**Actual SeqID Count:** 3287

Error code	Error Description
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (16)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (44)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (50)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (86)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (144)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (148)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (188)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (194)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (198)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (204)

**Input Set:**

**Output Set:**

**Started:** 2007-09-19 09:57:06.399  
**Finished:** 2007-09-19 09:58:50.669  
**Elapsed:** 0 hr(s) 1 min(s) 44 sec(s) 270 ms  
**Total Warnings:** 40  
**Total Errors:** 216  
**No. of SeqIDs Defined:** 3287  
**Actual SeqID Count:** 3287

Error code	Error Description
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (206)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (216)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (258)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (312)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (356)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (372)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (412)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (460)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (492)
E 355	Empty lines found between the amino acid numbering and the proteins
E 321	No. of Bases conflict, this line has no nucleotides SEQID (494) POS (96)
W 213	Artificial or Unknown found in <213> in SEQ ID (3022)

**Input Set:**

**Output Set:**

**Started:** 2007-09-19 09:57:06.399

**Finished:** 2007-09-19 09:58:50.669

**Elapsed:** 0 hr(s) 1 min(s) 44 sec(s) 270 ms

**Total Warnings:** 40

**Total Errors:** 216

**No. of SeqIDs Defined:** 3287

**Actual SeqID Count:** 3287

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (3023)
W 213	Artificial or Unknown found in <213> in SEQ ID (3024)
W 213	Artificial or Unknown found in <213> in SEQ ID (3025)
W 213	Artificial or Unknown found in <213> in SEQ ID (3026)
W 213	Artificial or Unknown found in <213> in SEQ ID (3027)
W 213	Artificial or Unknown found in <213> in SEQ ID (3028)
W 213	Artificial or Unknown found in <213> in SEQ ID (3029)
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W 213	Artificial or Unknown found in <213> in SEQ ID (3031)
W 213	Artificial or Unknown found in <213> in SEQ ID (3032)
W 213	Artificial or Unknown found in <213> in SEQ ID (3033)
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W 213	Artificial or Unknown found in <213> in SEQ ID (3038)
W 213	Artificial or Unknown found in <213> in SEQ ID (3039)
W 213	Artificial or Unknown found in <213> in SEQ ID (3266)
W 213	Artificial or Unknown found in <213> in SEQ ID (3267)

This error has occurred more than 20 times, will not be displayed

# SEQUENCE LISTING

<110> FRASER, Claire  
 GALEOTTI, Cesira  
 GRANDI, Guido  
 HICKEY, Erin  
 MASIGNANI, Vega  
 MORA, Marirosa  
 PETERSEN, Jeremy  
 PIZZA, Mariagrazia  
 RAPPUOLI, Rino  
 RATTI, Giulio  
 SCARLATO, Vincenzo  
 SCARSELLI, Maria  
 TETTELIN, Herve  
 VENTER, Craig J.

<120> Neisseria Meningitidis Antigens and Compositions

<130> 223002101200

<140> 09674546  
 <141> 2002-11-04

<150> PCT/US99/09346  
 <151> 1999-04-30

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<150> US 60/103,749  
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<160> 3287

<170> PatentIn version 3.2

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 tcgggtacgc atactttacc ggtttgggcg attttgccga ggtcgttgcg cagcaaatcg 180  
 acaatcatca cgttttcggc gcggtttttc gggtcggttt gtaactcggc ggcgcggcgt 240  
 tcgtcttgtc cgtcgcccaa aatcggcgcg gtgcctttca tcggttcggt gctgatggtg 300  
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 <213> *Neisseria gonorrhoeae*

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Met Leu Pro Gln Gly Lys Ala Ala Arg Arg Val Ser Ala Asn Glu Val  
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Ser Gly Arg Ala Cys Ala Arg Met Val Leu Val Ile Cys Gln Thr Leu  
 20 25 30

Pro Lys Arg Asp Thr Leu Asn Gly Ser Gly Thr His Thr Leu Pro Val  
 35 40 45

Trp Ala Ile Leu Pro Arg Ser Leu Arg Ser Lys Ser Thr Ile Ile Thr  
 50 55 60

Phe Ser Ala Arg Phe Phe Gly Ser Val Cys Asn Ser Ala Ala Arg Arg  
 65 70 75 80

Ser Ser Cys Pro Ser Pro Lys Ile Gly Ala Val Pro Phe Ile Gly Ser  
 85 90 95

Val Leu Met Val Pro Ser Glu Ala Met Leu Arg Lys Ser Ser Gly Glu  
 100 105 110

Lys His Ser Val His Ala Asp Cys Pro Ala Ser Ser Gly Arg Trp Asp  
 115 120 125

Asn Thr Ala

130

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<212> DNA

<213> *Neisseria meningitidis*

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cgggtacgca tactgtgccg gtttgggcga ttttgccgag atcgttacgc agcaaatacga 180

caatcatcac gttttcggcg cggtttttcg ggtctgcttg caactcggcg gcgcggcggtt 240

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<213> *Neisseria meningitidis*

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<220>

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<223> Xaa can be any naturally occurring amino acid

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1 5 10 15

Cys Gly Xaa Leu Xaa Ala Trp Xaa Val Leu Val Ile Cys Gln Thr Leu

20 25 30

Pro Lys Arg Asp Thr Leu Asn Gly Ser Gly Thr His Thr Val Pro Val  
35 40 45

Trp Ala Ile Leu Pro Arg Ser Leu Arg Ser Lys Ser Thr Ile Ile Thr  
50 55 60

Phe Ser Ala Arg Phe Phe Gly Ser Ala Cys Asn Ser Ala Ala Arg Arg  
65 70 75 80

Ser Ser Cys Pro Ser Pro Lys Ile Gly Ala Val Pro Phe Ile Gly Ser  
85 90 95

Val Leu Met Val Pro Ser Glu Pro Ile Leu Arg Lys Ser Ser Gly Glu  
100 105 110

Lys His Ser Val His Ala Asp Cys Pro Ser Ala Ser Gly Arg Trp Asp  
115 120 125

Lys Thr Ala  
130

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tcgggtacgc atactgtgcc ggtttgggcg attttgccga ggtcgttacg cagcaaatacg 180  
acaatcatca cgttttcggc gcggtttttc ggggtctgctt gcaactcggc ggcgcggcgt 240  
tcgtcttgctc cgtcgcccaa aatcggcgcg gtgcctttca tcggttcggt gctgatggtg 300  
ccgtccgaac cgattttgag gaagagtctg ggcgagaaac acagcgcca cgcggtattgc 360  
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<212> PRT  
<213> Neisseria meningitidis

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Met Leu Pro Gln Gly Lys Ala Ala Arg Arg Met Ser Ala Asn Glu Val  
1 5 10 15

Cys Gly Lys Ala Trp Ala Trp Met Val Leu Val Ile Cys Gln Thr Leu  
20 25 30

Pro Lys Arg Asp Thr Leu Asn Gly Ser Gly Thr His Thr Val Pro Val  
35 40 45

Trp Ala Ile Leu Pro Arg Ser Leu Arg Ser Lys Ser Thr Ile Ile Thr  
50 55 60

Phe Ser Ala Arg Phe Phe Gly Ser Ala Cys Asn Ser Ala Ala Arg Arg  
65 70 75 80

Ser Ser Cys Pro Ser Pro Lys Ile Gly Ala Val Pro Phe Ile Gly Ser  
85 90 95

Val Leu Met Val Pro Ser Glu Pro Ile Leu Arg Lys Ser Ser Gly Glu  
100 105 110

Lys His Ser Val His Ala Asp Cys Pro Cys Ala Ser Gly Arg Trp Asp  
115 120 125

Lys Thr Ala  
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<213> Neisseria gonorrhoeae

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<222> (529)..(529)  
<223> n is a, c, g, or t

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ctcttcgggc aggggtgcgtt tgagttcggc gtcaactcggg tttttatacg ttgccgcgtc 120  
gaagcctttg ccttgccggtg cggtctttggt tttgcccggc agcgggttcgt cggcctttgcg 180  
gatgtcgatg tggcagtagc cggtgggggt tttaatcagg tagtcctgat ggtattcctc 240  
ggcgtcgtag aagtttttca gcgggttcgtt ttcaacaacg aggggcagtt ggtatttttg 300

ctgctcgcggt ttgagggcggt cggcgatgac ggctttttcg gcggggtcgg tgtagtacac 360  
 gccgctgcggg tattgctgtgc cgggtgtcggt accctgtttg ttgaggctgg tcggatcaac 420  
 gacgcggaaa taatattgca ggatgtcgtc caggctgagt ttgtcggcat cgtaggtcac 480  
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 cgtgttgccg ttggcggttac cggataccgc gtcaaccacg ccgtcgatgc gttggaaata 600  
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<210> 8  
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 <213> *Neisseria gonorrhoeae*  
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 1 5 10 15

His Leu Val Leu Leu Phe Gly Gln Gly Ala Phe Glu Phe Gly Val Thr  
 20 25 30

Arg Phe Phe Ile Arg Cys Arg Val Glu Ala Phe Ala Leu Arg Cys Gly  
 35 40 45

Phe Gly Phe Ala Arg Gln Arg Phe Val Gly Phe Ala Asp Val Asp Val  
 50 55 60

Ala Val Ala Val Gly Val Phe Asn Gln Val Val Leu Met Val Phe Leu  
 65 70 75 80

Gly Val Val Glu Val Phe Gln Arg Phe Val Phe Asn Asn Glu Gly Gln  
 85 90 95

Leu Val Phe Leu Leu Leu Ala Phe Glu Gly Gly Gly Asp Asp Gly Phe  
 100 105 110

Phe Gly Gly Val Gly Val Val His Ala Ala Ala Val Leu Arg Ala Gly  
 115 120 125

Val Val Thr Leu Phe Val Glu Ala Gly Arg Ile Asn Asp Ala Glu Ile  
 130 135 140

Ile Leu Gln Asp Val Val Gln Ala Glu Phe Val Gly Ile Val Gly His  
 145 150 155 160

Phe Asp Gly Leu Gly Met Thr Arg Met Ala Val Gly His Phe Phe Val  
 165 170 175

Arg Val Phe Arg Val Ala Val Gly Val Thr Gly Tyr Arg Val Asn His  
 180 185 190

Ala Val Asp Ala Leu Glu Ile Gly Phe Gln Ala Pro Lys Ala Ala Ala  
 195 200 205

Gly Glu Val Asn Gly Ala Arg Val His Asp Cys  
 210 215

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 <212> DNA  
 <213> Neisseria meningitidis

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 gaagcctttg ccttgccgggg cggtcttggg tttgcccggc agcggttcgt cagckttgcg 180  
 gatgtcgatg tggcagtagc cggttgggggt tttaatcaag tagtcctgat ggtattcctc 240  
 ggcatcgtag aagtttttca gcggtcgtt ttcaacaacg aggggcagtt ggtatttttg 300  
 ctgctcgcgt ttgagggcgk cggcgatgac ggctttttcg kcggggtcgg tgtagtacac 360  
 gccgctgcgg tattgcgtac cggtgtcgtt gccctgtttg ttgaggctgg tcggatcaac 420  
 gacgcggaag aaatattgca ggatgtcgtc taggctgagt ttgtcggcat cgtaggtcac 480  
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Asn Leu Xaa Leu Leu Phe Gly Gln Gly Ala Phe Glu Phe Gly Val Thr  
20 25 30

Arg Phe Phe Ile Arg Cys Arg Val Glu Ala Phe Ala Leu Arg Gly Gly  
35 40 45

Leu Gly Phe Ala Arg Gln Arg Phe Val Ser Xaa Ala Asp Val Asp Val  
50 55 60

Ala Val Ala Val Gly Val Phe Asn Gln Val Val Leu Met Val Phe Leu  
65 70 75 80

Gly Ile Val Glu Val Phe Gln Arg Leu Val Phe Asn Asn Glu Gly Gln  
85 90 95

Leu Val Phe Leu Leu Leu Ala Phe Glu Gly Xaa Gly Asp Asp Gly Phe  
100 105 110

Phe Xaa Gly Val Gly Val Val His Ala Ala Ala Val Leu Arg Thr Gly  
115 120 125

Val Val Ala Leu Phe Val Glu Ala Gly Arg Ile Asn Asp Ala Glu Glu  
130 135 140

Ile Leu Gln Asp Val Val Ala Glu Phe Val Gly Ile Val Gly His Phe  
145 150 155 160

Asp Gly Phe Gly Val Ala Arg Met Ala Val Gly His Val Phe Ile Ala  
165 170 175

Arg Ile Phe Arg Val Ala Val Gly Val Ala Gly Tyr Arg Val Asn His  
180 185 190

Ala Val Asp Ala Leu Glu Ile Gly Phe Gln Ala Pro Glu Ala Ala Xaa  
195 200 205

Gly Glu Val Asn Gly Ala Arg Val His Asp Phe  
210 215

<210> 11  
<211> 663  
<212> DNA  
<213> Neisseria meningitidis

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gaagcctttg ccttgccgtg cggctcttggg tttgcccggc agcgggttcgt cggcttttgcg 180  
gatatcgatg tggcagtagc cggtgggggtt tttaatcaag tagtcctgat ggtattcctc 240  
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cgtgttgccg ttggcgtagc cggataccgc gtcaaccacg ccgtcgtatgc gttggaaata 600  
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<213> *Neisseria meningitidis*

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20 25 30

Arg Phe Phe Ile Arg Cys Arg Val Glu Ala Phe Ala Leu Arg Cys Gly  
35 40 45

Leu Gly Phe Ala Arg Gln Arg Phe Val Gly Phe Ala Asp Ile Asp Val  
50 55 60

Ala Val Ala Val Gly Val Phe Asn Gln Val Val Leu Met Val Phe Leu  
65 70 75 80

Gly Ile Val Glu Val Phe Gln Arg Leu Val Phe Asn Asn Glu Gly Gln  
85 90 95

Leu Val Phe Leu Leu Leu Ala Phe Glu Gly Gly Gly Asp Asp Gly Phe  
100 105 110

Phe Gly Gly Val Gly Val Val His Ala Ala Ala Val Leu Arg Thr Gly  
115 120 125

Val Val Ala Leu Phe Val Glu Ala Gly Arg Ile Asn Asp Ala Glu Glu  
130 135 140

Ile Leu Gln Asp Val Val Ala Glu Phe Val Gly Ile Val Gly His Phe  
145 150 155 160

Asp Gly Phe Gly Val Ala Arg Met Ala Val Gly His Val Phe Ile Ala  
165 170 175

Arg Ile Phe Arg Val Ala Val Gly Val Ala Gly Tyr Arg Val Asn His  
180 185 190

Ala Val Asp Ala Leu Glu Ile Gly Phe Gln Ala Pro Glu Ala Ala Ala  
195 200 205

Gly Glu Val Asp Gly Ala Arg Val His Asp Phe  
210 215

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<213> *Neisseria gonorrhoeae*

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ggtggctttt tcggcataca ggcgcataatg gcctttgttt accagcatca cgcggtgcg 180  
accttgattt ttgaacgata cttcgccgat gacaaattcg tcggcttggt attgcgcggc 240  
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acttctacat tgccgtctgc gtcgagtttg acctcggttt tagcatccag atgcagtttc 660  
aattcttctc cgaacacggc tttcgctcgc tctgaaacaa cggggtcgga aatgcgcgcg 720  
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<213> *Neisseria gonorrhoeae*

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20 25 30

Asp Phe Arg Ala Asp Lys Ala Ala Gly Gly Phe Phe Gly Ile Gln Ala

35

40

45

His Met Ala Phe Val Tyr Gln His His Ala Ala Ala Thr Leu Ile Phe  
50 55 60

Glu Arg Tyr Phe Ala Asp Asp Lys Phe Val Gly Leu Val Leu Arg Gly  
65 70 75 80

Asn Leu Arg Val Phe Gln Thr Asp Lys Ala Asp Leu Arg Thr Gly Lys  
85 90 95

His His Ala Asn Gly Ala Ala Ala Gln Thr Ala Ala Asp Ile Arg Val  
100 105 110

Ala Ala Pro Arg Tyr Cys Pro Ala Ile Leu Pro Trp Ser Ala Ala Ser  
115 120 125

Cys Ser Arg Gly Ser Tr